

REMARKS/ARGUMENTS:

The Office Action dated November 15, 2007 rejected claims 6-7 and 21 under 35 USC 112, second paragraph for antecedent basis; rejected claims 1-7 under 35 USC 102(e) as anticipated by Kelly (2004/0057503), and deemed claim 21 allowable if amended to overcome the rejection under 35 USC 112, second paragraph.

This paper adds claims 22-32. Claims 22-24 are drawn from canceled claims 9-11. Claim 25 is drawn from the preamble of canceled claim 9. Claims 26-30 follow claims 21-25 using the embodied program preamble drawn from canceled claim 18. Claim 31 is drawn from canceled claim 20. Support for claim 32, which recites generally the elements of claim 1 and wherein the rotators are adapted to perform conversions between two coordinate systems, may be found at least at page 9, lines 6-22. No new matter is added. Claims 1-7 and 21-32 are now pending.

Claim 1 has been amended to more clearly recite that the limiter is a “vector magnitude limiter”. Support for this amendment can be found, at least, at Fig. 3.

Claims 6-7 and 21 are amended to recite correct antecedent basis. Claims 22-25 depend from claim 21. Claim 26 recites elements from claim 21 for an embodied computer program, and claims 27-31 depend from claim 26. Based on the previous conclusion of allowable subject matter for claim 21, each of claims 21-31 is seen to be in condition for allowance.

Rejections under 35 USC § 102(e):

With respect to claim 1, the Office Action asserts that “Kell[e]y, as shown in figures 1, 3 and 4, teaches system comprising a first rotator (108), first gain device (112), first limiter (124) and second rotator (142). See also paragraphs [0020] and [0023].”

Applicants respectfully assert that the Examiner is in error in characterizing these teachings of Kelley. Specifically, Kelley does not teach a first limiter, in particular a vector magnitude limiter, as recited in claim 1.

The Examiner asserts that element 124 of Kelley is a first limiter. In fact, at the Examiner's citation to paragraph [0023] it is clearly made reference to "first order integrator section 124" and "integrator 124". As described at paragraph [0022], "This signal is noisy due to the background noise associated with the spreading function of the information-bearing signal. Its DC component represents the best estimate of the center frequency of the interfering signal. For this reason, we filter this signal, preferably with a conventional M-order comb low pass Finite Impulse Response (FIR) filter 120 ... The smoothed output at the filter output 122 is indicated as the filtered center frequency estimate of the interfering signal". Kelley then further states, at paragraph [0023], "The estimated interference **frequency is then converted to phase** via a conventional first-order integrator section 124."

Kelly estimates/tracks frequency, then uses the estimate ($\hat{\omega}_{0,s}^T$ in the text for Fig. 1) to downconvert to baseband and then notch/cancel the interfering signal. After the notch (or DC block), the frequency of the signal (less the canceled interfering signal) is then returned to the nominal center frequency. There is no amplitude limiting seen in this signal manipulation, only tone cancellation. Kelly is not seen as relevant to amplitude limiting, or to peak-to-average power reduction, for a multi-code spread spectrum system. The commonality between Kelly and embodiments of this invention appears limited to the presence of multiple CORDICs, but they are used differently and for different purposes. Kelly is not seen anywhere to manipulate amplitude of a signal, only its phase/frequency (along with the DC block). Kelly runs a frequency tracking loop to estimate frequency (or phase change). Kelly's integrator 124 would commonly be termed a frequency to phase converter, with the phase correction $\hat{\omega}_{0,s}^T$ applied in the next CORDIC rotator stage. Kelly uses the CORDICs to perform frequency/phase corrections in order to isolate to baseband the interfering signal (before notching/blocking DC), and then to return the signal, less the interfering portion, to its original phase. There does not appear any amplitude limiting in

Kelly, at baseband or otherwise.

As is clearly evident, the integrator 124 of Kelley is an integrator for performing a conversion from frequency to phase. Integrator 124 is not a limiter. It is further therefore clear that integrator 124 is not a vector magnitude limiter as claimed. Applicants further assert that Kelley does not elsewhere teach limiting a magnitude of a vector via a vector magnitude limiter, and so claim 1 is seen to patentably distinguish over Kelley.

Claims 2-7 depend from claim 1 and should be allowable at least for that reason.

With respect to new claim 32, Applicants note that, in addition to the reasons discussed above with reference to claim 1, claim 32 is further not anticipated by Kelley. Claim 32 recites that a first rotator performs conversion between a first coordinate system and a second coordinate system while a second rotator performs conversion between the second coordinate system and the first coordinate system. As is evident from the figures and description of Kelley, particularly Fig. 4 and paragraph [0029], Kelley discloses a first, second, and third vector rotation element (elements 402, 404, 406, respectively). In addition, at paragraph [0017] and referring to Fig. 8, it is stated: "The frequency is converted to a phase in a frequency to phase converter 812." In all of these instances, Kelley discloses a vector rotation. There is no teaching of a first rotator operating to convert between a first coordinate system and a second coordinate system while a second rotator performs conversion between the second coordinate system and the first coordinate system as claimed. For this additional reason, claim 32 is clearly distinguished from the teachings of Kelley.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

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Reply to Office Action of November 15, 2006

It is submitted that the claims herein patentably distinguish over the art relied on by the Examiner and early allowance of same is courteously solicited.

Respectfully submitted:



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